Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte AKIRA KAMADA
and
MASAHIKO KOSAI

Appeal No. 2000-0307
Application No. 08/859,430

HEARD: February 19, 2002

Before KIMLIN, WALTZ and POTEATE, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-4, all the claims remaining in the present application. Claim 1 is illustrative:

1. A negative electrode plate for a lead storage battery comprising:

a negative electrode active material; and

graphite powder having a mean particle size not larger than 30 µm.

The examiner relies upon the following references as evidence of obviousness:

Hohjo et al. (Hohjo)	5,156,935	Oct. 20, 1992
Pitts et al. (Pitts)	5,223,352	Jun. 29, 1993

Appellants' claimed invention is directed to a negative electrode plate for a lead storage battery which comprises, inter alia, graphite powder. The powder has a mean particle size not larger than 30 µm. According to appellants, "[t]he present invention is drawn to a negative electrode that performs better under heat and pressure" (page 4 of Brief, first paragraph).

Appealed claims 1-4 stand rejected under 35 U.S.C. § 103 as being unpatentable over Pitts. The appealed claims also stand rejected under 35 U.S.C. § 103 as being unpatentable over Hohjo.

Appellants submit at page 4 of the Brief that "the rejected claims stand or fall together" (third paragraph). Accordingly, all the appealed claims stand or fall together with claim 1, and we will, therefore, limit our consideration to the examiner's rejection of claim 1.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will

sustain the examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

Appellants do not dispute the examiner's factual determination that both Pitts and Hohjo disclose a negative electrode plate for a lead storage battery comprising a negative electrode active material and graphite. The principal, if not sole, argument advanced by appellants with respect to both rejections is that the graphite material of Pitts and Hohjo is not in powder form, as required by the appealed claims. Appellants maintain that the graphite of Pitts is in fibrous form, having dimensions of length and diameter, and, therefore, is not a powder. As for Hohjo, appellants contend that since the graphite of the reference is in whisker form, it does not qualify as a powder.

We are not persuaded by appellants' arguments inasmuch as we concur with the examiner that the fibers of Pitts and the whiskers of Hohjo can be properly considered powders due to their micron-sized dimensions. Appellants have not established on this record that graphite material, having dimensions less than 30 µm, would not be classified as powders by one of ordinary skill in the art.

Regarding Pitts, in particular, the examiner accurately points out that the graphite fibers disclosed are preferably comminuted (column 3, lines 5-6). Insofar as a common dictionary definition of the term "comminute" is to pulverize into powder, we are convinced that one of ordinary skill in the art would have fairly considered the comminuted graphite fibers of Pitts to be in powder form.

Regarding Hohjo, the examiner presents the following in the paragraph bridging pages 8 and 9 of the Answer:

> Hohjo teaches that the whiskers should have a diameter of 10 microns or smaller, or more preferably 0.0-1.0 microns. The ratio of the diameter (D) with the length (L) should be L/D = 50 or more, or preferably 100 to 1,000. Following these teachings, if the diameter of the whisker is 0.1 microns, and the L/D ratio is 100, the length of the whisker would be 10 microns. Hence, Hohjo suggests that both the length and the diameter of the whisker particle can be below 30 microns. No matter how the artisan chooses to calculate the average particle size, it is less than 30 microns.

Hence, since Hohjo discloses graphite whiskers having both a diameter and length less than the claimed 30 µm, we are satisfied that one of ordinary skill in the art would have construed Hohjo as teaching the use of graphite powder in a negative electrode plate.

As a final point, we note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected

results. In particular, not only is there no data of record comparing negative electrode plates comprising graphite powder with negative electrode plates comprising either graphite fibers or whiskers in accordance with Pitts and Hohjo, respectively, but we find no disclosure in the present specification which attaches criticality to the powder form of graphite utilized, at least as opposed to the fiber and whisker forms.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN Administrative Patent Judge	)	
THOMAS A. WALTZ Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LINDA R. POTEATE Administrative Patent Judge	)	

ECK:clm

Sughrue, Mion, Zinn, MacPeak & Seas
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037